

direct cell death compared with rituximab (Rtx) and is pending regulatory approval (in combination with chlorambucil (Clb)) for the treatment of patients with previously untreated chronic lymphocytic leukemia (CLL). Obinutuzumab+Clb has shown >85% reduction in the risk of progression, relapse or death in comparison to treatment with Clb alone (HR 0.14), a broadly accepted treatment option for many patients with co-existing medical conditions. In a majority of markets the health economic consequences will be assessed in terms of affordability. **METHODS:** A health economic model was developed analyzing the cost impact of obinutuzumab on further lines of treatment due to the number of reduced refractory patients compared to Clb and Rtx. Market share information for obinutuzumab, ofatumumab, Rtx, Clb and Bendamustine and the different relevant combinations were entered for Germany and Canada (Ontario province only). **RESULTS:** Based on a 39% reduction in numbers of refractory patients treated with obinutuzumab+Clb compared to Rtx+Clb cost savings per year per patient (PYPP) for further line treatments in Canada (Ontario) range between Ca\$950 and Ca\$3,091, which leads to maximum cost savings for the whole eligible population (401 patients) up to \$Ca1,239,491. In Germany the cost savings range PYPP between €2,556 and €8,318, which leads to maximum cost savings for the whole eligible population (1,302 patients) up to €10,830,036. The big difference in the cost savings PYPP between the two countries is mainly due to the different market share assumptions for ofatumumab. Key cost drivers were treatment duration and price/cost of further line treatments. Scenario analyses on cost, efficacy and market share data confirmed these findings. **CONCLUSIONS:** Obinutuzumab+Clb shows significant patient-relevant clinical benefits and potential cost savings in further line treatments in patients with previously untreated CLL.

PCN51**PHARMACOECONOMIC ASPECTS OF CHRONIC PAIN MANAGEMENT IN RUSSIAN CANCER PATIENTS**

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OBJECTIVES: To assess the cost-effectiveness of the new transdermal therapeutic system (TTS) of fentanyl and subcutaneous injections (Sis) of morphine hydrochloride in the treatment of chronic pain and predict potential budget impact of the implementation of fentanyl TTS in routine clinical practice. **METHODS:** The pharmacoeconomic model was developed based on the results of Russian observational study, included 45 patients with terminal cancer: 25 patients received fentanyl TTS and 20 – Sis of morphine. At the first stage, the cost-effectiveness ratios (CERs) of therapies during the first month was measured as total costs of medicines and expenses for ambulance services for acute pain relief per one patient without side-effects. At the second stage, the CERs of therapies during subsequent three months was measured as costs of medicines per one unit of pain intensity (PI) reduction (visual pain scale). **RESULTS:** During the first month of therapy the frequency of ambulance use was significantly lower in patients received fentanyl TTS (0.32 vs 1.05 per one patient per week in the morphine group), this was reflected in lower total costs (12 611, 42 RUB and 23,037.54 RUB per one patient, respectively). Patients in the fentanyl TTS group were less likely to have side effects. The estimated CERs for fentanyl TTS and Sis of morphine were 13,001.46 RUB and 27,756.07 RUB per one patient without vomiting and 23,354.47 RUB and 82,276.93 RUB per one patient without constipation, respectively. Long-term treatment with fentanyl TTS was resulted in decreased PI as compared to Sis of morphine. The three-month CERs were 4,897.05 RUB and 7,869.30 RUB per one unit of PI reduction, respectively. **CONCLUSIONS:** The present study has demonstrated that administration of new transdermal therapeutic system of fentanyl has the better cost-effectiveness profile in the treatment of Russian cancer patients.

PCN52**BUDGET IMPACT OF LIPEGFILGRASTIM FOR THE MANAGEMENT OF CHEMOTHERAPY-INDUCED NEUTROPENIA**

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OBJECTIVES: Chemotherapy-induced neutropenia (CIN), a commonly-occurring adverse event in cancer patients undergoing chemotherapy, and particularly febrile neutropenia (FN), have potentially life-threatening and costly consequences. The standard of care for patients at risk of FN comprises prophylactic administration of recombinant granulocyte colony-stimulating factor (G-CSF) with pegfilgrastim, a long-acting formulation of G-CSF, and the most widely used in Europe. Lipegfilgrastim is a novel, pegylated and glycosylated long-acting G-CSF designed for use in the same patient population as pegfilgrastim. We developed a model to estimate the economic impact over five years of managing G-CSF-eligible chemotherapy patients at risk of FN with lipegfilgrastim rather than pegfilgrastim in Scotland. **METHODS:** The eligible patient population was estimated based on cancer incidence in Scotland and current uptake of G-CSF by patients initiating chemotherapy to prevent neutropenia. Drug, monitoring and event costs were taken from the British National Formulary, Unit Costs of Health and Social Care and Scottish National Tariff. As lipegfilgrastim was shown to be non-inferior to pegfilgrastim (in a phase III study in breast cancer patients), the efficacy and safety of pegfilgrastim and lipegfilgrastim were assumed to be identical. Non-statistically significant trends towards fewer neutropenic events and dose modifications with lipegfilgrastim were explored in scenario analyses. **RESULTS:** The model estimated that 315 patients currently receive pegfilgrastim annually. A progressive increase in lipegfilgrastim uptake was associated with cost savings ranging from £2,814 in year 1 to £16,883 in year 5, totalling £61,904 over five years. Savings were attributable to the low drug acquisition cost of lipegfilgrastim. Using event rates from the pivotal phase III breast cancer study, scenario analyses suggested that using lipegfilgrastim instead of pegfilgrastim generated savings of £145,312, avoided 81 neutropenic events (including 11 occurrences of FN) and 50 dose modifications, and caused 34 additional treatment-emergent adverse events. **CONCLUSIONS:** Lipegfilgrastim was cost-saving compared with pegfilgrastim.

PCN54**SAFETY PROFILE AND COSTS OF RELATED ADVERSE EVENTS OF TRASTUZUMAB EMTANSINE COMPARED TO OTHER REGIMENS IN THE CANADIAN HEALTH CARE SYSTEM**

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OBJECTIVES: Trastuzumab emtansine (T-DM1) is an antibody–drug conjugate comprised of the microtubule inhibitory cytotoxic agent DM1 and trastuzumab which, in addition to its antitumor properties, targets T-DM1 to HER2-overexpressing cells. The overall safety profile of T-DM1 was investigated in the phase III EMILIA trial (comparing T-DM1 [n=496] to capecitabine plus lapatinib [CAP+LAP, n=495]) in patients with HER2-positive locally advanced or metastatic breast cancer (MBC) previously treated with trastuzumab and a taxane, and the phase II TDM4450g trial (comparing T-DM1 [n=67] to trastuzumab plus docetaxel [TRAZ+DOCE, n=70]) in patients with previously untreated MBC. Both trials demonstrated clinically meaningful differences between T-DM1 and its comparators. The objectives were to estimate and compare the Canadian costs of managing the treatment-related adverse events (AEs) of T-DM1 as reported in the two trials, from the perspective of Canadian public payers. **METHODS:** An Excel based spreadsheet model was utilized for the analysis. Costing information was obtained from the literature, clinical experts, and Canadian standard costing sources. Costs were reported as 2012 CAD. The AEs that were considered were all treatment-related grade ≥3 AEs as well as grade 2 AEs that occurred in ≥5% of patients in both arms of either study. **RESULTS:** The management of treatment-related AEs as reported in the EMILIA trial resulted in higher per patient costs ranging from \$3,060 - \$10,499 for CAP+LAP versus \$1,376 - \$2,463 for T-DM1, yielding savings of \$1,684-\$8,036. In the TDM4450g trial, the management of treatment-related AEs resulted in higher per patient costs ranging from \$5,124 - \$27,617 for TRAZ+DOCE versus \$798 - \$2,215 for T-DM1, yielding savings of \$4,326-\$25,402. **CONCLUSIONS:** This analysis demonstrated that utilizing T-DM1 for the management of HER2-positive metastatic breast cancer results in significant cost savings of related AEs management due to the improved safety profile compared to CAP+LAP and TRAZ+DOCE.

PCN55**A COST-ANALYSIS OF STEREOTACTIC RADIOTHERAPY IN LUNG CANCER**

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OBJECTIVES: Stereotactic radiation therapy is an innovative technique with high therapeutic potential due to excellent local control and increased survival rate. A cost analysis investigating stereotactic radiation therapy modalities either with linear accelerator (Cone Beam Computed Tomography (CBCT), Exac-trac) or Cyberknife was conducted. **METHODS:** The cost-analysis was performed prospectively based on a multicenter study. Patients included were treated for lung carcinoma (T1-T2, N0, M0). Cost calculations were strictly based on a micro costing approach according to the hospitals' point of view. Only direct costs were taken into account. Productivity losses of personnel involved in the process, costs of administrative personnel, costs of logistics and general management were not taken into account. Time horizon included radiation therapy (preparation for radiation therapy and the fraction itself). All costs were given in 2011 euros. Uncertainty was captured by one-way and probabilistic sensitivity analyses using a non-parametric bootstrap method. **RESULTS:** 113 patients were enrolled in 11 French centers from April 2009 to December 2011. 98 economic questionnaires were exploitable. The costs of preparation for stereotactic radiation therapy were 430€ (SD: 101€) with Cyberknife and 433€ (SD: 199€) with linear accelerator. When required, costs of implementation of fiducial markers with one/two days of inpatient care were 1,619€. The costs of stereotactic radiation therapy (all fractions included) were 1,811€ (SD: 760€) with Cyberknife and 817€ (SD:403€) with linear accelerator. Costs per fraction were 550€ (SD: 224€) with Cyberknife and 201€ (SD: 97€) with linear accelerator. Depreciation periods of the accelerator played a major role in costs. **CONCLUSIONS:** This is to our knowledge the first study highlighting costs incurred by different stereotactic radiation therapy modalities in lung cancers. Cost-effectiveness studies have to be conducted in order to shed further light on which modality to focus on.

PCN56**COST OF ADVERSE EVENTS DURING TREATMENT WITH EVEROLIMUS PLUS EXEMESTANE OR SINGLE-AGENT CHEMOTHERAPY IN PATIENTS WITH ADVANCED BREAST CANCER**

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OBJECTIVES: Everolimus plus exemestane (EVE+EXE) recently received approval for the treatment of patients with HR+/HER2- advanced breast cancer that recurs or progresses during/after non-steroidal aromatase inhibitors. This study was designed to evaluate the expected costs of managing adverse events during EVE+EXE therapy and single-agent chemotherapy in the western European region. **METHODS:** An economic model was developed to estimate per-patient cost of managing adverse events for patients receiving EVE+EXE or chemotherapies. Adverse event rates for EVE+EXE were collected from the phase III BOLERO-2 trial. Adverse event rates for capecitabine, docetaxel, and doxorubicin chemotherapies were collected from published clinical trial data. Grade 3/4 adverse events with at least 2% prevalence during any of these treatments were included in the study. The adverse event rate

estimates do not count multiple episodes of the same event. Costs of managing each adverse event were obtained from the literature and averaged across western European countries (UK, Germany, France, Italy, Belgium, Spain, Sweden, and Switzerland), where available. The costs were inflated to 2012 Euros (€). **RESULTS:** Expected per-patient costs of managing adverse events within the first year of treatment among patients with advanced breast cancer receiving EVE+EXE were €730. Among patients receiving capecitabine, docetaxel, or doxorubicin as single-agent chemotherapy, expected per-patient costs were €1721, €2390, and €1230, respectively. The most costly adverse event for patients treated with EVE+EXE was anemia (€152 per patient). The most costly adverse event for patients treated with capecitabine, docetaxel, or doxorubicin was lymphocytopenia (€861 per patient), neutropenia (€821 per patient), and leukopenia (€382 per patient), respectively. **CONCLUSIONS:** Expected costs of managing adverse events in patients with HR+/HER2- advanced breast cancer receiving EVE+EXE are about one-half to one-third of the costs for those receiving chemotherapies. This economic consideration can have important implications for health care spending in the advanced breast cancer setting.

PCN57

ECONOMIC IMPACT MODEL OF LIPEFILGASTRIM TO PREVENT NEUTROPENIA IN CANCER PATIENTS IN SPAIN

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OBJECTIVES: To estimate the economic impact of managing chemotherapy patients at risk of neutropenia and eligible to receive Granulocyte-Colony Stimulating Factor (G-CSF) with lipefilgastrim (LONQUEx, a new long-acting G-CSF) rather than pegfilgastrim in Spain. **METHODS:** Both the BIA and CMA were conducted from the Spanish-payer's perspective: they included direct drug cost, administration, neutropenic events and adverse event costs, but did not consider indirect costs. The drug acquisition cost of lipefilgastrim used in the model was based on the anticipated price of lipefilgastrim at the time of launch in Spain. All costs were expressed in EUROS-2013. A range of sensitivity, scenario and threshold analyses were performed. An additional analysis was performed within the BIA to explore the trend towards fewer dose modifications in the lipefilgastrim arm of the XM22-03 trial. **RESULTS:** The CMA shows that treating a patient with lipefilgastrim instead of pegfilgastrim resulted in a cost saving of 650,06€. At the population level, the BIA predicts that cost savings could range from 113.166€ in year 1 to 678.995€ in year 5, totaling to 2.489.648€ over five years. Furthermore, the BIA shows a potential to avoid 50 dose modifications with the use of lipefilgastrim instead of pegfilgastrim. The model is most sensitive to the cost of pegfilgastrim and lipefilgastrim, but results are robust, with the model estimating cost savings over a wide range of inputs. When the trend towards decreased NE and increased AE with lipefilgastrim vs pegfilgastrim reported in the XM22-03 trial is explored, cost savings was about 30% compared to the default scenario, reaching 3.208.619 €, mainly due to decreased NE costs. **CONCLUSIONS:** Lipefilgastrim is cost-saving compared with pegfilgastrim. These savings are confirmed across a wide range of input values.

PCN58

THE RELATIVE ECONOMIC VALUE OF IPILUMUMAB IN COLOMBIA

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OBJECTIVES: There are relatively few treatment options for pre-treated metastatic melanoma (MM) patients. Clinicians have recently been provided access to a new option, ipilimumab that has demonstrated long-term survival benefits, in a subset of patients. Karweit J and colleagues (2012) present data to support the use of mean OS for agents with a right-skewed survival curve, where a subset of patients respond to treatment with long term survival - as is the case for ipilimumab. The research presents data for several oncology agents: ipilimumab for MM, bevacizumab for non-small cell lung cancer, sorafenib for hepatocellular carcinoma, lenalidomide for multiple myeloma, trastuzumab for metastatic breast cancer and vemurafenib for MM. The data reveals a greater mean OS improvement than median OS improvement, since mean OS accurately captures the complete survival benefits. In this analysis we select agents from the Karweit J et al study and who have received regulatory authorization in Colombia, to compare their relative economic value. **METHODS:** The economic value of each asset is presented in terms of cost per month of mean OS within the Colombian health care payer perspective. The analysis uses the cost to treat to mean progression of each asset divided by the months of mean overall survival improvement using current list prices of assets. **RESULTS:** Ipilimumab in comparison to bevacizumab, sorafenib, trastuzumab, sunitinib, lenalidomide, and vemurafenib demonstrates a clinical and economic relative value. The cost per mean overall survival month gained for ipilimumab (\$39,344,362 COP) is below the average of the comparator assets (range from \$60,226,690 to \$20,166,226). **CONCLUSIONS:** The relative clinical and economic value of ipilimumab in the context of a variety of oncologic assets is clearly documented. This data provides health care decision makers critical data when determining coverage of oncologic treatments.

PCN59

EXAMINING THE BURDEN OF ILLNESS OF VETERAN PATIENTS WITH PROSTATE CANCER IN THE UNITED STATES

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OBJECTIVES: To examine the economic burden and health care utilizations of prostate cancer patients in the U.S. veteran population. **METHODS:** Patients diagnosed with prostate cancer (ICD-9: 185.xx) were identified from the U.S. Veterans Health Administration (VHA) Medical SAS dataset from October 1, 2009 through September 30, 2011. The first diagnosis date was defined as the index date. A comparator group was created by identifying patients without prostate cancer but with the same age, region, gender, index year, and matched baseline Charlson Comorbidity Index. The

index date for the comparator group was randomly chosen to reduce selection bias. A 1-year continuous health plan enrollment was required before and after the index date for both groups. Study outcomes, including health care costs and utilizations, were compared between the disease and comparator groups using 1:1 propensity score matching (PSM). **RESULTS:** Eligible patients (N=384,596) were identified for the prostate cancer and comparison cohorts and after applying PSM, a total of 112,693 patients were matched from each group and the baseline characteristics were well-balanced. Patients diagnosed with prostate cancer were more likely to be hospitalized (75.41% vs. 2.46%, p<0.01), and report more emergency room (9.30% vs. 5.45%, p<0.01), outpatient (99.77% vs. 61.15%, p<0.01) and pharmacy visits (85.65% vs. 63.77%, p<0.01). Patients diagnosed with prostate cancer also incurred higher costs for inpatient (\$2,216 vs. \$695, p<0.01), emergency room (\$92 vs. \$51, p<0.01), outpatient (\$3,364 vs. \$1,462, p<0.01), pharmacy (\$582 vs. \$413, p<0.01) and total costs (6,162 vs. \$2,571, p<0.01) compared to the comparator group. **CONCLUSIONS:** Patients diagnosed with prostate cancer were associated with a higher burden of illness compared to their matched controls during a period of 12 months.

PCN60

COST OF CARE WITH EVEROLIMUS VERSUS AXITINIB FOR SECOND-LINE METASTATIC RENAL CELL CARCINOMA PATIENTS IN CANADA

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OBJECTIVES: Everolimus and axitinib are approved to treat patients with metastatic renal cell carcinoma (mRCC) following failure on various first-line therapies. This analysis assessed the cost of care with everolimus versus axitinib for second-line mRCC patients from a Canadian payer perspective. **METHODS:** Costs considered in this analysis included those related to drug acquisition and adverse events (AEs). Drug acquisition costs were based on the Ontario wholesaler price. Adverse event costs were based on the Ontario Case Costing Initiative and literature. Drug costs, adjusted for dose intensity, and AE costs, based on daily incidence rates, accrued for the duration of treatment in each arm; the sums of these costs were compared across treatments. The mean dose intensities, treatment durations and rates of AEs in the treatment arms were the calculated from trial data. Scenario analyses are presented to estimate the range of costs within the treatment arms. Costs are presented in 2011 Canadian dollars. **RESULTS:** In the base case analysis, the total cost of treatment with everolimus was estimated to be \$24,931 while the total cost of treatment with axitinib was \$39,010. The primary driver of the cost discrepancy was axitinib's high dose intensity, resulting in high drug acquisition costs. Despite analysis limitations, the trend of the results remained consistent across scenario analyses. When treatment duration was estimated from median progression-free survival estimates in each study's post-sunitinib populations, the total cost of treatment with everolimus was \$8,339 less than with axitinib. Sensitivity analyses that assumed equivalent treatment durations between each arm also demonstrated lower overall treatment costs for everolimus patients. **CONCLUSIONS:** The analysis demonstrates that everolimus provides a less costly treatment option than axitinib for patients requiring second-line therapy. Significant uncertainty remains regarding axitinib's treatment duration and dosing, which could result in higher costs to the health care system compared to everolimus.

PCN61

RELATIVE CLINICAL AND ECONOMIC VALUE OF IPILUMUMAB IN MEXICO

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OBJECTIVES: Ipilimumab is a clinically proven treatment option for pre-treated metastatic melanoma (MM). Ipilimumab has clearly demonstrated survival benefit, that is prolonged in a proportion of the responding patients. Karweit J and colleagues (2012) demonstrated that mean overall survival (OS) can be particularly useful for agents with a right-skewed survival curve where a subset of patients respond to treatment with long term survival. The research has demonstrated that several agents, including ipilimumab for MM, bevacizumab for non-small cell lung cancer, sorafenib for hepatocellular carcinoma, lenalidomide for multiple myeloma and trastuzumab for metastatic breast cancer (among others) have shown greater mean OS improvement than median OS improvement, reflecting the long term survival benefit for some patients. In this analysis we select oncologic agents that have demonstrated mean OS benefit in the above mentioned study and have received license in Mexico. We compare the relative economic value delivered by each asset, which broadly represent the therapeutic oncologic class. **METHODS:** The economic value of the analogues is estimated for the Mexican private perspective in terms of cost per month of mean OS versus comparators. The analysis relies on the cost to treat to mean progression by the months of mean OS improvement. **RESULTS:** Cost per month of OS for ipilimumab (\$15,993 USD) when compared to bevacizumab, sorafenib, trastuzumab, sunitinib, lenalidomide and vemurafenib is below the average relative cost of the assets (range from \$35,871 to \$9,845 USD). **CONCLUSIONS:** This study demonstrates that ipilimumab is a competitive asset in terms of value for money. The analysis allows to evaluate within a clear and robust analytical framework, the reimbursement decisions across the oncologic therapeutic class in Mexico.

PCN62

COSTS OF PILOT PROGRAMS EMPLOYING ALLIED HEALTH PROFESSIONALS WITHIN THE CENTERS FOR POPULATION HEALTH AND HEALTH DISPARITIES

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OBJECTIVES: To measure the costs of two pilot interventions within the National Institutes of Health-funded Centers for Population Health and Health Disparities (CPHHD) designed to improve health outcomes in medically underserved commu-